

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-36, and add new claims 37-76, as follows:

Claim 37 (New) A process for producing dichloropropanol, according to which glycerol is subjected to a reaction with a chlorinating agent, wherein the reaction is carried out in the presence of at least one catalyst based on a carboxylic acid or a carboxylic acid derivative, wherein

- (A) the carboxylic acid derivative is selected from the group consisting of a monocarboxylic acid ester, a polycarboxylic acid ester, a monocarboxylic acid anhydride, a polycarboxylic acid anhydride, a monocarboxylic acid chloride, a polycarboxylic acid chloride, a monocarboxylic acid salt and a polycarboxylic acid salt, and
- (B) the carboxylic acid is selected from the group consisting of:
  - a. monocarboxylic acids comprising 5, 6 or 7 carbon atoms,
  - b. fatty acids,
  - c. aromatic carboxylic acids which are optionally substituted,
  - d. di-carboxylic acids selected from glutaric acid and adipic acid, and
  - e. tri- and tetra-carboxylic acids.

Claim 38 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one carboxylic acid derivative which is an ester from group A selected from esters of the carboxylic acids of group B.

Claim 39 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one carboxylic acid selected from the group consisting of valeric

acid, caproic acid, heptanoic acid, octanoic acid, lauric acid, decanoic acid, salicylic acid, 4-chlorobenzoic acid, 2,4-dichlorobenzoic acid, 4-nitrobenzoic acid and 2,4-dinitrobenzoic acid.

Claim 40 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one carboxylic acid derivative selected from the group consisting of a dicarboxylic acid anhydride, a dicarboxylic acid chloride, a dicarboxylic acid salt and a dicarboxylic acid ester.

Claim 41 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one polycarboxylic acid derivative which has an atmospheric boiling point of greater than or equal to 200°C.

Claim 42 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one dicarboxylic acid derivative selected from the group consisting of adipic acid anhydride, adipic acid chloride, adipic acid salt and adipic acid ester.

Claim 43 (New) The process according to claim 37 wherein the reaction is carried out continuously.

Claim 44 (New) The process according to claim 37 wherein the chlorinating agent comprises substantially anhydrous hydrogen chloride.

Claim 45 (New) The process according to claim 37 wherein the chlorinating agent is an aqueous solution of hydrogen chloride with a hydrogen chloride content higher than or equal to 4 % by weight.

Claim 46 (New) The process according to claim 37 wherein the reaction is carried out in a liquid reaction medium.

Claim 47 (New) The process according to claim 46 wherein the catalyst concentration in the liquid reaction medium expressed in mole of acid and of acid esters derivatives per kg of liquid reaction medium is higher than or equal to 0.1 and lower than or equal to 10.

Claim 48 (New) The process according to claim 37 wherein the reaction is carried out in the presence of at least one organic solvent.

Claim 49 (New) The process according to claim 48 wherein the organic solvent comprises at least one solvent selected from the group consisting of chloropropanediol, dichloropropanol and heavy by-products which denote glycerol oligomers which can be partially chlorinated, esterificated or chlorinated and esterificated.

Claim 50 (New) The process according to claim 46 wherein water is present in the liquid reaction medium and the water concentration in the reaction medium is lower than or equal to 15% by weight.

Claim 51 (New) The process according to claim 50 wherein a gas phase comprising hydrogen chloride is in equilibrium with the liquid reaction medium and wherein reaction conditions are adjusted in such a way that the concentration of hydrogen chloride in the gas phase above the liquid reaction medium remains lower than the concentration of hydrogen chloride in the binary azeotropic hydrogen chloride-water mixture.

Claim 52 (New) The process according to claim 51 in which continuous or periodic withdrawal of a fraction comprising at least water with a hydrogen chloride content equal to or less than 10% by weight relative to the total weight of the fraction comprising water and optionally dichloropropanol is carried out, and the reaction medium is fed with water.

Claim 53 (New) The process according to claim 37 wherein the reaction is carried out in a reactor made of material(s) that are resistant, under the conditions of reaction, to the chlorinating agent and are selected from enameled steel, polymers, coatings by means of resins, metals or alloys, ceramics, metalloceramics and refractory materials.

Claim 54 (New) The process according to claim 37 wherein a reactor is fed, in a continuous or batch mode, with glycerol via line (21) and catalyst via line (22), the feed of hydrogen chloride, anhydrous or in aqueous solution, is carried out continuously or in batch-mode via line (23), a distillation column (30) is fed via line (24) with vapor produced from reactor (20), a stream is withdrawn from column (30) via line (26) and fed to decantor (31) in which aqueous and organic phases are separated.

Claim 55 (New) The process according to claim 37 wherein a reactor (33) is continuously or batch fed with glycerol via line (41) and catalyst via line (42), the feed of hydrogen chloride, anhydrous or in aqueous solution, is carried out continuously or in batch-mode through line (43), a distillation column (42) is fed via line (34) with the vapour produced from reactor (33), the residue from column (42) is recycled via line (35) to the reactor (33), a purge from the reactor bottom is fed via line (37) into a stripper (44) wherein a partial stripping operation is carried out by heating or by gas sweeping with nitrogen or steam, the gas phase containing most of the hydrogen chloride from stream (37) is recycled

via line (38) to the column (42) or via line (45) to the reactor (33), a distillation or stripping column (43) is fed with the liquid phase arising from the stripper (44) via line (39), the main fraction of dichloropropanol is collected from the top of the column through line (40) and the column residue is recycled via line (41) to the reactor (33).

Claim 56 (New) The process according to claim 54 wherein:

- (a) a liquid phase is withdrawn from reactor (20) or (33)
- (b) an azeotropic, hydrogen chloride/water mixture is added to the liquid phase and the resulting mixture is then heated
- (c) the acid is recovered from this resulting mixture by crystallization and recycled to reactor (20) or (33).

Claim 57 (New) A process for producing an organic compound comprising

- (a) a first step wherein glycerol is produced from renewable raw materials and
- (b) a second step wherein organic compounds are produced from glycerol obtained in the first step.

Claim 58 (New) The process according to claim 57, wherein the organic compound is dichloropropanol and according to which glycerol is subjected to a reaction with a chlorinating agent, with the exception of a reaction carried out in the presence of acetic acid or its derivatives.

Claim 59 (New) A process for producing epichlorhydrin wherein

- (a) dichloropropanol is produced in accordance with a process according to claim 58;

(b) at least one fraction of the obtained dichloropropanol is subjected to a dehydrochlorination reaction.

Claim 60 (New) A process for producing epoxy resins according to which epichlorohydrin derived from the process according to claim 59 is used as starting material.

Claim 61 (New) A process for producing dichloropropanol, according to which glycerol is subjected to a reaction with a chlorinating agent comprising hydrogen chloride which has been obtained as a by-product in organic chlorination, elimination or substitution reaction or by combustion or by evaporation of concentrated hydrochloric acid.

Claim 62 (New) A process according to Claim 61, wherein:

(a) a plant oil is subjected to a trans-esterification reaction with an alcohol other than glycerol so as to recover at least biodiesel and a crude product containing glycerol;

(b) the crude product is optionally subjected to a purification operation such as distillation;

(c) glycerol formed in step (a) is subjected to a reaction with a chlorinating agent comprising hydrogen chloride which has been obtained as a by-product in organic chlorination, elimination or substitution reaction or by combustion or by evaporation of concentrated hydrochloric acid.

Claim 63 (New) A process for producing a chlorinated organic compound wherein glycerol obtained from renewable raw materials is used as a starting product, wherein said glycerol is brought into contact with at least one chlorinating agent and wherein the chlorinated organic compound is produced in a reactor made of materials that are resistant,

under the conditions of reaction, to the chlorinating agent and are selected from enameled steel, polymers, coatings by means of resins, metals or alloys, ceramics and metalloceramics, refractory materials, graphite and impregnated graphite.

Claim 64 (New) A process for producing epichlorhydrin wherein at least one fraction of dichloropropanol produced in accordance with a process according to claim 63 is subjected to a dehydrochlorination reaction.

Claim 65 (New) A process wherein glycerol is contacted with at least one condensing agent or with epichlorohydrin, possibly in the presence of a base, and polyglycerol is obtained.

Claim 66 (New) A process for producing epoxy resins according to which epichlorohydrin derived from the process according to claim 64 is used as starting material.

Claim 67 (New) A process for producing dichloropropanol, according to which glycerol is subjected to a reaction with a chlorinating agent, wherein the reaction is carried out in a liquid reaction medium in the presence of a catalyst based on a carboxylic acid or on a carboxylic acid derivative and wherein the catalyst concentration in the reaction medium expressed in mole of acid and of acid esters derivatives per kg of liquid reaction medium is higher than or equal to 0.1 and lower than or equal to 10.

Claim 68 (New) A process for producing epichlorhydrin wherein

(a) dichloropropanol is produced in accordance with a process according to claim 67;

(b) at least one fraction of the obtained dichloropropanol is subjected to a dehydrochlorination reaction.

Claim 69 (New) A process for producing epoxy resins according to which epichlorohydrin derived from the process according to claim 68 is used as starting material.

Claim 70 (New) A process for producing epoxy resins wherein dichloropropanol comprising at least 50% by weight of 1,3-dichloropropane-2-ol relative to the total weight of dichloropropanol is used as a starting material.

Claim 71 (New) A process according to claim 70, wherein the dichloropropanol is produced by reaction between glycerol and a chlorinating agent.

Claim 72 (New) A process for producing a chlorinated organic compound wherein glycerol is brought into contact with at least one chlorinating agent in a liquid reaction medium and in the presence of at least one organic solvent comprising heavy byproducts of the reaction.

Claim 73 (New) A pseudo-azeotropic composition consisting essentially of dichloropropanol obtained by the process of claim 72, hydrogen chloride and water.

Claim 74 (New) A process for separation of a mixture comprising at least water, dichloropropanol and hydrogen chloride wherein the mixture is separated in a distillation step wherein the sum of materials fed to said distillation step has a hydrogen chloride



concentration which is lower than the hydrogen chloride concentration in the binary azeotropic composition hydrogen chloride/water at the pressure of the distillation.

Claim 75 (New) A pseudo-azeotropic composition consisting essentially of dichloropropanol, hydrogen chloride and water.

Claim 76 (New) A process for producing a pseudo-azeotropic composition by separation of a mixture containing at least water, dichloropropanol and hydrogen chloride in a distillation step wherein the sum of materials fed to said distillation step has a hydrogen chloride concentration which is lower than the hydrogen chloride concentration in the binary azeotropic composition hydrogen chloride/water at the pressure of the distillation.